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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/708,965	11/08/2000	Kanu G. Shah	60680-1378	3214

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RADER, FISHMAN & GRAUER PLLC
39533 WOODWARD AVENUE
SUITE 140
BLOOMFIELD HILLS, MI 48304-0610

EXAMINER

BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 12/31/2002

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/708,965

Applicant(s)

SHAH ET AL.

Examiner

Melanie D. Bissett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-24 is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-16 is/are rejected.
- 7) ☒ Claim(s) 9, 10 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6-7. 6) ☐ Other: _____

DETAILED ACTION

1. The rejection of claims 15-17 has been withdrawn based on the applicant's argument that the primary reference teaches away from using non-elastic materials. However, all other rejections have been maintained, and claims 15-16 have been included in the rejection over Sasaki in view of Siebert, as evidenced by Stucke.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-5 and 15-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-2, 5, 8-10, 33, and 23-24 of copending Application No. 09/644,634. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

4. From a prior Office action:

8. Copending claim 1 discloses a process for sealing and insulating a fuel cell plate comprising providing a fuel cell plate and applying a radiation- or heat-polymerizable coating precursor to a surface of the plate, and exposing the coating precursor to radiation or heat to initiate polymerization. Although the claim does not mention "cross-linking" by radiation or heat, the term

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"polymerization" would include crosslinking reaction. Furthermore, although the claim does not specify infrared radiation, dependent claim 8 limits the precursor to be adapted to polymerize by infrared radiation. Thus, it would have been prima facie obvious to use infrared radiation or heat to polymerize or crosslink the coating of copending claim 1 in the expectancy of beneficial results.

9. Copending claim 33 discloses an insulated fuel cell plate comprising a plate and a coating precursor applied thereon, where the coating precursor is an acrylate resin, an epoxy nitrile resin, or an organopolysiloxane resin. Although the scope of the claims differ, it is the examiner's position that it would have been prima facie obvious to choose epoxy nitrile resin for the coating precursor in the expectancy of beneficial results. Furthermore, copending claims 23-24 specify coating thicknesses for insulated fuel cell coatings. It is the examiner's position that it would have been prima facie obvious to coat the epoxy nitrile resins of copending claim 33 at the specified thicknesses of copending claims 23-24 in the expectancy of beneficial results.

10. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Ying et al.

7. From a prior Office action:

13. Ying discloses a protective coating for separators in electrochemical cells, where a protective coating is applied to a microporous layer (abstract). The coating may be coated and cured by heat, UV light, visible light, infrared radiation, and electron beam radiation (col. 7 lines 48-55), and the separators may be used in fuel cell applications (col. 11 lines 9-15). Ying teaches combining an ethoxylated diacrylate with a urethane acrylate and a photosensitizer, coating the mixture at a thickness of 4 microns onto a substrate, and exposing the coating to UV lamps for 30 seconds to cure (example 1). Since the microporous layers are thin layers of metal oxide material (col. 19 lines 6-17), it is the examiner's position that the microporous layers of Ying's invention would read on a "plate". Further, since the separators of the invention are useful in fuel cell applications, it is the examiner's position that Ying's reference teaches fuel cell plates and processes of making.

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8. Claims 1 and 4-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Sasaki et al.

9. From a prior Office action:

15. Sasaki discloses sealants for fuel cells which are applied to a porous carbon plate (col. 3 lines 28-32) and heated to cure the sealant layer (embodiment 1). The plates are exposed to radiation for less than 30 minutes, since radiation is not used to cure the sealant layers. Embodiment 1 shows a coating thickness of 0.25 mm (250 μ m), thus teaching a coating precursor of *less than about* 250 μ m.

Claim Rejections - 35 USC § 103

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 6-8, 11-12, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. in view of Siebert, as evidenced by Stucke.

12. From a prior Office action:

20. Sasaki applies as above, failing to mention the use of infrared-curable sealant materials comprising epoxy resin and acrylonitrile butadiene copolymer. Siebert teaches the use of compositions comprising epoxy resin, polybutadiene-acrylonitrile rubber, and an amine crosslinking agent (example 1), where the mixture is cast onto a substrate and thermally cured (col. 7 lines 33-50). The compositions can be used as castable gaskets, seals, and o-rings (col. 7 lines 51-57). Siebert notes the use of colorants (col. 7 lines 15-19) and aromatic liquid compounds (col. 5 lines 22-40), thus teaching the use of solvents. Since infrared radiation is conventionally used as a heating method for crosslinking epoxy resins in short amounts of time (Stucke, abstract), it is the examiner's position that the epoxy resin of Siebert's invention is inherently adapted to crosslink in response to infrared radiation. It is the examiner's position that it would have been *prima facie* obvious to use the epoxy coatings of Siebert's invention as gaskets in Sasaki's invention, since the epoxy compositions of Siebert's invention are castable and hence more easily applied.

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13. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. in view of Siebert as evidenced by Stucke as applied to claims 6-8 and 11-12 above, and further in view of Ciba-Giegy.

14. From a prior Office action:

22. The cited references apply as above, failing to mention the use of air-release agents and slip aids. Ciba-Giegy shows the conventionality of adding such components to an epoxy coating composition (p. 3 line 57-p. 4 line 4). Since Siebert suggests that conventional additives may be added to the epoxy composition of the invention, it is the examiner's position that it would have been prima facie obvious to add slip aids and air-release agents to optimize coating appearance and processing.

15. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. in view of Canfield.

24. Sasaki applies as above for the process of sealing a fuel cell plate, failing to mention the application of the coating by screen printing. However, Canfield shows the conventionality of screen printing a gasket onto a fuel cell plate (Figure 6, col. 4 lines 40-51). It is the examiner's position that it would have been prima facie obvious to use a screen printing technique to apply the gasket layer of Sasaki's invention to provide a patterned discontinuous gasket layer in the expectancy of beneficial results.

Allowable Subject Matter

16. Claims 18-24 are allowed.

17. Claims 9-10 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter:

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19. The closest prior art, Siebert, discloses the use of compositions comprising epoxy resin, polybutadiene-acrylonitrile rubber, and an amine crosslinking agent, where the mixture is cast onto a substrate and thermally cured. The compositions can be used as castable gaskets, seals, and o-rings. However, the reference does not teach the addition of a thermoplastic resin and further does not demonstrate the compositions applied to fuel cells. Siebert also does not teach the coatings having a thickness of less than about 150 μm . Therefore, it is the examiner's position that the use of the applicant's claimed coatings including thermoplastic resins for fuel cell applications is novel and unobvious over the closest prior art.

Response to Arguments

20. In response to the applicant's arguments that Ying does not teach a plate structure analogous to the applicant's claimed plate structure, it is noted that the claims only limit the structure by containing a fuel cell plate and a coating. Although the structure of Ying's teaching may not match the articles of the applicant's specification, the structural differences noted by the applicant in the arguments are not described in the present claims. In the broadest interpretation of the claim, it is the examiner's position that Ying's formation of a microporous electrolyte element having a protective coating layer reads on the applicant's claimed process.

21. Regarding the applicant's arguments that Ying does not teach a "plate", it is noted that the dried coating layers of Ying's invention, formed on a substrate, provide a free standing separator (col. 19 lines 47-67). The use of separator "plates" having a

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porous nature in fuel cell articles is recognized in the art. See Sasaki, col. 3 lines 15-32; col. 4 lines 19-42. Thus, Ying teaches coating a plate to be used in a fuel cell.

22. In response to the applicant's arguments that Sasaki does not teach a plate structure analogous to the applicant's claimed plate structure, it is noted that the claims only limit the structure by containing a fuel cell plate and a coating. Although the structure of Sasaki's teaching may not match the articles of the applicant's specification, the structural differences noted by the applicant in the arguments are not described in the present claims. In the broadest interpretation of the claim, it is the examiner's position that Sasaki's formation of a gasket seal coating on a porous carbon plate to be used in fuel cell applications reads on the applicant's claimed process.

23. Regarding the applicant's arguments that Sasaki and Canfield cannot be combined because the substrates in the two references have different porosities, it is noted that Canfield has been applied as a secondary reference to show the conventionality of screen printing gasket seal coatings onto substrates. Since the gasket coatings of Sasaki are flowable and have low viscosity (col. 8 lines 43-52), one of ordinary skill in the art would recognize that the coatings of Sasaki could be screen-printed onto porous substrates by Canfield's teaching to form patterned coatings. Sasaki's coatings would not be coated onto Canfield's substrates; therefore, the porosity of Canfield's substrates is irrelevant to the combination of references.

24. Although the applicant argues that Canfield teaches away from molded gaskets, it is the examiner's position that the passages relied upon by the applicant further suggest motivation to use screen printing over a molded gasket. Motivation for screen-

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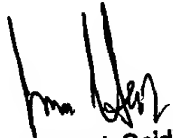
printing a gasket in Sasaki's invention would have been the improved ease of processing due to the unnecessary step of forming a gasket groove.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb
December 30, 2002


James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700